



News Release

August 2, 2023

Nippon Steel Corporation

**The JOGMEC Commission Entrusted with a Joint Study on Japanese Advanced CCS Project in
FY2023**
-Two Joint Initiatives in Which Nippon Steel Participates Selected -

Nippon Steel Corporation (hereinafter, "Nippon Steel") today announced that it has officially been selected and entered into a commission contract with the Japan Organization for Metals and Energy Security ("JOGMEC") for two initiatives with other companies within the feasibility study on Japanese Advanced CCS* Project ("Study"), a public offering project in FY2023.

*CSS (Carbon dioxide Capture and Storage) is a technology that captures and stores CO².

In March 2021, Nippon Steel announced Carbon Neutral Vision 2050 in its medium- to long-term management plan. The vision states the aims of reducing CO² emissions 30% by 2030 from the 2013 level and achieving carbon neutrality in 2050. To attain these goals, we have been advancing decarbonization with three innovative process reforms (namely, high-grade steel production in large-sized electric arc furnaces, hydrogen injection into blast furnaces, and 100% hydrogen use in the direct reduction process) and have positioned CCS as one of the most important technologies to process the CO² that is generated, even with the incorporation of these technologies. Through the commissioning of this Study, we will make efforts with the other companies to secure storage locations, develop storage infrastructure, and develop external requirements, including laws and regulations.

[Feasibility study on Japanese Advanced CCS Project officially adopted and in which Nippon Steel is involved]

1. Tohoku Region West Coast CCS initiative
(ITOCHU Corporation, **Nippon Steel Corporation**, Taiheiyo Cement Corporation, Mitsubishi Heavy Industries, Ltd., ITOCHU Oil Exploration Co., Ltd., INPEX Corporation, Taisei Corporation)
2. Metropolitan Area CCS initiative
(INPEX Corporation, **Nippon Steel Corporation**, Kanto Natural Gas Development Co., Ltd.)

For the details of each initiative, please refer to the separate news releases.

Regarding CCS, Nippon Steel has been making efforts to develop and improve fundamental technologies, including ESCAP™, the energy-saving CO² separation and capture technology that was developed by

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

Nippon Steel Engineering, our related company, and has a track record in commercial operation. Going forward, we will take a proactive approach toward CO² separation, capture, and liquefaction as well as give consideration to shipping terminals, etc. to promote prompt implementation of CCS in society.

For inquiries: Public Relations Center

Tel.: +81-3-6867-2977, -2135, -2146, or -3419

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

August 2, 2023

ITOCHU Corporation
Nippon Steel Corporation
Taiheiyo Cement Corporation
Mitsubishi Heavy Industries, Ltd.
ITOCHU Oil Exploration Co., Ltd.
INPEX Corporation
Taisei Corporation

Seven Companies Announce to Conduct a Joint Study on Japanese Advanced CCS
(Carbon Capture and Storage) Project

ITOCHU Corporation (headquartered in Minato-ku, Tokyo; Keita Ishii, President & COO; hereinafter "ITOCHU"), Nippon Steel Corporation (headquartered in Chiyoda-ku, Tokyo; Eiji Hashimoto, President; hereinafter "Nippon Steel"), Taiheiyo Cement Corporation (headquartered in Bunkyo-ku, Tokyo; Masafumi Fushihara, President; hereinafter "Taiheiyo Cement"), Mitsubishi Heavy Industries, Ltd. (headquartered in Chiyoda-ku, Tokyo; Seiji Izumisawa, President and CEO; hereinafter "MHI"), ITOCHU Oil Exploration Co., Ltd. (headquartered in Minato-ku, Tokyo; Takumi Hiraga, President & CEO; hereinafter "CIECO"), INPEX Corporation (headquartered in Minato-ku, Tokyo; Takayuki Ueda, President & CEO; hereinafter "INPEX"), and Taisei Corporation (headquartered in Shinjuku-ku, Tokyo; Yoshiro Aikawa, President and CEO; hereinafter "Taisei") announced today that the Tohoku Region West Coast CCS initiative (hereinafter "the Initiative"), that the seven companies jointly proposed, has been selected by the Japan Organization for Metals and Energy Security (hereinafter "JOGMEC") to conduct a feasibility study on Japanese Advanced CCS Project (hereinafter "Study")*1, a public offered project in FY2023. *2

Japan's Ministry of Economy, Trade and Industry set a goal of launching a public offering of CCS value chain operators, including carbon dioxide (hereinafter "CO₂") emitting companies, and a number of advanced CCS projects by 2030 for the social implementation of CCS, which is positioned as a means for decarbonization that should be fully harnessed, particularly in hard-to-abate industries*3, to achieve two targets of the Japanese government: carbon neutrality in 2050 and a 46% reduction in greenhouse gas emissions (from FY2013 level) in FY2030.

Given the above governmental policy and targets as the background, four companies, ITOCHU, MHI, INPEX and Taisei, announced on January 26 this year that they will jointly carry out a study for launching a joint project relating to the separation, capture, ship transportation and storage of CO₂ emitted particularly from hard-to-abate industries in Japan and conduct a process of selecting prospective sites for CO₂ storage in Japan. Subsequently, Nippon Steel and Taiheiyo Cement are participating in the Initiative as CO₂ emitting

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

companies, and CIECO, a core operating subsidiary company in the oil and natural gas development business of the ITOCHU Group and being actively involved in CCS and other decarbonization projects, has also joined the seven

companies in conducting the Study. In the Study, with a view to launching a concrete CCS value chain project by FY2030, the seven companies will identify technical issues in the entire CCS value chain as well as commercial and social acceptability issues, based on the overall concept of using ships to transport CO₂ separated and captured at specific plants of Nippon Steel and Taiheiyo Cement, to sites appropriate for CO₂ storage.

Nippon Steel announced Carbon Neutral Vision 2050 in its medium- to long-term management plan in March 2021. The vision says that the company aims to reduce CO₂ emissions 30% by 2030 from the 2013 level and achieve carbon neutrality in 2050. Nippon Steel positions CCS as one of the most important key technologies to achieve these targets along with high-grade steel production in large-sized electric arc furnaces, hydrogen injection into blast furnaces (Super-COURSE50) and hydrogen direct reduction of iron.

Taiheiyo Cement announced Carbon Neutral Strategy 2050 in its medium-term management plan in May 2021. The company also announced a 2030 Interim Target, a 20% or more reduction in CO₂ emission intensity in the entire supply chain from 2000 level in March 2022. Positioning the achievement of carbon neutrality in 2050 as one of the top priority issues, Taiheiyo Cement is accelerating the implementation of its carbon neutrality initiatives. While it is possible to reduce energy-derived CO₂ emissions to zero by converting to green energy sources, such as hydrogen, ammonia, and synthetic methane, CO₂ emissions from raw materials cannot be reduced to zero as long as limestone is used, which is a major challenge the cement industry is facing. To address the challenge, Taiheiyo Cement is primarily undertaking initiatives involving the development of innovative technologies, including the separation and capture of CO₂ in the course of cement production and CCS, and CCU technology that makes it possible to use CO₂ as a new resource.

The seven companies will cooperate with each other in the Study and actively work toward the early social implementation of CCS and the realization of a sustainable society in Japan.

Roles of each company in the Study

Make Our Earth Green










NIPPON STEEL
Green Transformation
initiative

JOGMEC

Outsourcing contract

Managing company

	Nippon Steel	Taiheiy Cement	MHI	ITOCHU	CIECO	INPEX	Taisei
Role of each company	 Study of separation, capture and liquefaction of CO ₂ and shipping terminal	 Study of separation capture and liquefaction of CO ₂ and shipping terminal	 Study of the separation, capture and liquefaction of CO ₂ / Study of ship transportation of liquefied CO ₂ and onshore liquefied CO ₂ receiving and storage facilities	 Overall coordination, evaluation of economic, arrangements and management with CO ₂ emitting companies	 Technology and cost/economic evaluation of the entire value chain, and study of CO ₂ injection and underground storage	 Study of CO ₂ injection and underground storage, CO ₂ monitoring planning, and overall evaluation of technologies at receiving and storage facilities	 Study of CO ₂ injection and underground storage and receiving and storage facilities (port facilities)

Make Our Earth Green



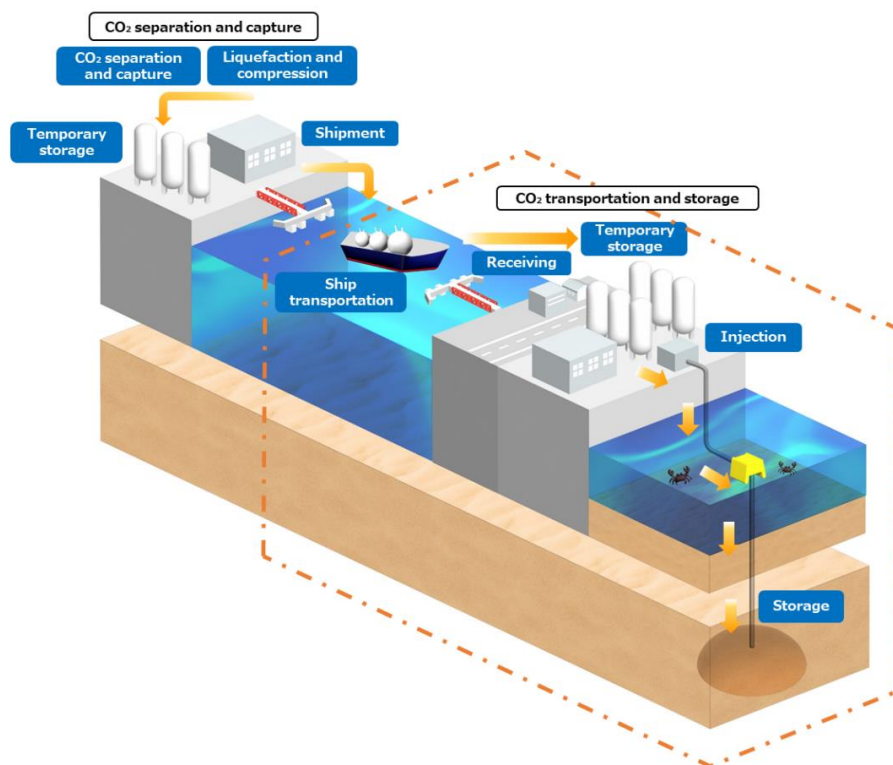
NIPPON STEEL
Green Transformation
initiative

Schedule for the Initiative

		Fiscal year	2023	2024	2025	2026	2027	2028	2029	2030	
Area	Separation and capture	Design	[Green bar from 2023 to 2026]								
		Facilities construction work					[Green bar from 2027 to 2030]				
	Transportation	Design	[Green bar from 2023 to 2026]								
		Facilities construction work					[Green bar from 2027 to 2030]				
		Procurement of ships and other transportation means					[Green bar from 2027 to 2030]				
	Storage	Identification of sites appropriate for CO ₂ storage, evaluation of storage capacity	[Green bar from 2023 to 2024]								
		Environmental impact assessment, test drills and evaluation		[Green bar from 2024 to 2026]							
		Design	[Green bar from 2023 to 2026]								
		Drilling					[Green bar from 2027 to 2030]				
		Facilities construction work					[Green bar from 2027 to 2030]				
	Relationships with local communities of Sites appropriate for CO ₂ storage, and others	Study of economics, development of business models	[Green bar from 2023 to 2026]								
		Local coordination	[Green bar from 2023 to 2026]								
		Development of commercial schemes					[Green bar from 2027 to 2030]				

Commencement of storage

Image of large-scale and wide-area CCS value chain project using ship transportation



Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

- *1 For the purpose of supporting the diffusion and expansion of CCS projects, a study of separation and capture, transportation and storage of CO₂ in connection with Japanese Advanced CCS Project, which are designed to cluster CO₂ emission sources and create CO₂ storage hubs to achieve larger scale projects and reduce costs.
- *2 The Ministry of Economy, Trade and Industry and JOGMEC have each announced the selection of the Initiative as one of the candidate projects for the Study on June 13 this year.
- ✓ Full-scale Commencement of Japanese CCS Projects: JOGMEC Selects Projects as Japanese Advanced CCS Projects (announced by the Ministry of Economy, Trade and Industry)
https://www.meti.go.jp/english/press/2023/0613_001.html
 - ✓ First Step to Launch Japanese CCS Project: JOGMEC selected 7 projects, starting CO₂ storage by FY2030 (announced by JOGMEC)
https://www.jogmec.go.jp/english/news/release/news_10_00036.html
- *3 The materials industry that is expected to have difficulty achieving decarbonization merely by electrification, introduction of hydrogen and other means
- *4 Four Companies Announce Joint Feasibility Study of Large-Scale Wide-Area Carbon Capture and Storage (CCS) Value Chain Project Using Ship Transportation
<https://www.itochu.co.jp/en/news/press/2023/230126.html>

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

August 2, 2023

INPEX Corporation
Nippon Steel Corporation
Kanto Natural Gas Development Co., Ltd.

**JOGMEC Officially Awards Tokyo Metropolitan Area CCS Project to
INPEX, Nippon Steel and Kanto Natural Gas Development as part of
FY2023 “Survey on Implementation of Advanced CCS Projects”**

INPEX CORPORATION (headquartered in Minato-ku, Tokyo; Takayuki Ueda, President & CEO; hereinafter “INPEX”), Nippon Steel Corporation (headquartered in Chiyoda-ku, Tokyo; Eiji Hashimoto, President; hereinafter “Nippon Steel”) and Kanto Natural Gas Development Co., Ltd. (headquartered in Mobara-shi, Chiba; Takeshi Mori, President; hereinafter “Kanto Natural Gas Development”) announced today that the three companies have concluded a consignment contract with JOGMEC regarding the “Survey on the implementation of advanced CCS projects” for fiscal year 2023 commissioned by the Japan Organization for Metals and Energy Security (JOGMEC). The three companies had jointly applied to undertake the Tokyo metropolitan area CCS project (hereinafter “research project”).

The research project has been positioned to minimize the volume of emissions in fields where CO₂ emissions are inevitable in order to achieve the Japanese government’s goals of carbon neutrality by 2050 and a 46 percent reduction in greenhouse gas emissions in 2030 (compared to 2013 figures). JOGMEC will provide support to back the initiation of CCS projects in Japan by 2030 as advocated by Japan’s Ministry of Economy, Trade and Industry (METI).

The research project will involve studying the feasibility of capturing CO₂ emitted from multiple industries including steelworks in the Tokyo metropolitan area, transporting the CO₂ through pipelines and storing the CO₂ in offshore coastal zones of the Tokyo metropolitan area and other areas. Each company will leverage its respective technological capabilities and knowledge to jointly conduct studies and surveys in each segment of the CCS value chain, including CO₂ separation, capture, transportation and storage, toward the commercialization of CCS.

In its “Long-term Strategy and Medium-term Business Plan (INPEX Vision @ 2022)” formulated in February 2022, INPEX positions CCS/CCUS as a priority business area to help realize a net zero carbon society.

Nippon Steel has announced “Carbon Neutral Vision 2050” in its Medium- to Long-term management plan” in March 2021, and positions CCS as one of the most important technologies in aiming for carbon neutrality

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative

in 2050.

Kanto Natural Gas Development has expressed in the "Long-Term Management Vision 'VISION2030'" formulated in December 2022 that they will take on the challenge of achieving carbon neutrality by 2050.

Media Contact: INPEX Tokyo Office, Public Relations Group, Tel) +81-3-5572-0233

Nippon Steel, Public Relations Center, Tel) +81-3-6867-2977

Kanto Natural Gas Development Head Office, General Affairs Group, Tel) +81-475-23-1313

Make Our Earth Green



NIPPON STEEL
Green Transformation
initiative